Amendments To The Claims
(In The Revised Format)

The listing of claims presented below will replace all prior versions, and listings, of claims in the application.

Listing of claims:

1. (currently amended): A method of operating a wireless communication network comprising a plurality of stations each able to transmit and receive data so that the network can transmit data from an originating station to a destination station via at least one opportunistically selected intermediate station, the method comprising:

a) defining at least one calling channel, distinct from at least one data channel, on which stations can transmit probe signals to other stations to which any station can respond, receive probe signals from other stations, and monitor probe signals transmitted by other stations;

b) selecting, at intervals, at each station and according to first predetermined criteria, a calling channel for the transmission of probe signals to other stations;

c) transmitting broadcast probe signals from each station at intervals on the selected calling channel, other stations which receive the broadcast probe signals from a given station responding directly, or indirectly via at least one intermediate station, to thereby indicate to the given station their availability as destination or intermediate stations; and

d) evaluating, at the given station, the direct or indirect responses of other stations to said broadcast probe signals according to second predetermined criteria, in

order to identify other stations with which the given station can communicate optimally.

2. (original): A method according to claim 1 wherein the other stations receiving the probe signals from the given station each modify their own probe signals to include data indicating the quality of the communication between the given station and themselves, the given station being responsive to said data to vary at least one parameter of its transmissions so that it can communicate optimally with a desired number of other stations in the network without causing undue contention or interference between stations.

3. (previously presented): A method according to claim 1 wherein the probe signals from the given station include data identifying other stations which said given station has detected as being available as destination or intermediate stations.

4. (original): A method according to claim 3 wherein the probe signals further include data indicating the quality of the communication between the given station and each other identified station.

5. (original): A method according to claim 4 wherein the probe signals are broadcast probe signals addressed to all or a plurality of the other stations.

6. (original): A method according to claim 5 wherein the probe signals additionally include addressed probe signals, addressed to at least one other station with which the station transmitting the addressed probe signals wishes to communicate.

7. (original): A method according to claim 6 wherein the addressed probe signals are transmitted more frequently than the broadcast probe signals.

8. (previously presented): A method according to claim 6 wherein the addressed probe signals include age information corresponding to the age of the data indicating the quality of the communication between the given station and each other identified station, for use by the station receiving the addressed probe signals in selecting other stations with which to communicate.

9. (currently amended): A method ~~according to claim 3~~ of operating a communication network comprising a plurality of stations each able to transmit and receive data so that the network can transmit data from an originating station to a destination station via at least one intermediate station, the method comprising:

a) defining at least one calling channel, distinct from at least one data channel;

b) selecting, at intervals, at each station and according to first predetermined criteria, a calling channel for the transmission of probe signals to other stations;

c) transmitting probe signals from each station at intervals on the selected calling channel, other stations which receive the probe signals from a given station responding directly, or indirectly via at least one intermediate station, to thereby indicate to the given station their availability as destination or intermediate stations,

wherein the probe signals from the given station include data identifying other stations which said given station has detected as being available as destination or intermediate stations, and

further wherein the probe signals include power gradient information corresponding to ~~the~~ a **cumulative transmission power** required for each identified station to reach those other identified stations with which said each identified station can communicate, for use by the

station receiving the probe signals in selecting other stations with which to communicate; and

d) evaluating, at the given station, the direct or indirect responses of other stations to said probe signals according to second predetermined criteria, in order to identify other stations with which the given station can communicate optimally.

10. (original): A method according to claim 9 including transmitting chaser signals from an originating to a destination station, the chaser signals following multiple paths to the destination, thereby generating power gradient information usable by stations of the network in selecting a route for the transmission of data from the originating station to the destination station.

11. (previously presented): A method according to claim 10 including transmitting a gradient message from the destination station to the originating station, the power gradient message including data corresponding to the cumulative power required to transmit a data message from the originating station to the destination station via an optimum route.

12. (previously presented): A method according to claim 11 wherein all messages routed through the network include power gradient information corresponding to the cumulative transmission power required for the message to reach respective stations on its route through the network, thereby to permit optimised routing of messages through the network.

13. (original): A method according to claim 1 wherein stations receiving probe signals from the given station respond by transmitting reply signals to the given station, the given station comparing the number of reply signals received from different stations with a predetermined value, and varying at least one parameter of its transmission if the number of reply signals does

not correspond to the second value until the number of reply signals received by the given station corresponds to the predetermined value.

14. (original): A method according to claim 13 including defining a plurality of calling channels, each calling channel except the first having a higher data rate than a previous calling channel and selecting a different calling channel having a different data rate from the previous calling channel according to the second predetermined criteria if the number of reply signals does not correspond to the predetermined value.

15. (original): A method according to claim 14 wherein the first predetermined criteria include the calling channel data rate and/or the calling channel transmission power, the calling channel being selected according to the highest available channel data rate and/or the lowest available channel transmission power.

16. (previously presented): A method according to claim 14 wherein the second predetermined criteria include the calling channel data rate and/or the calling channel transmission power, the different calling channel being selected to have an incrementally lower channel data rate and/or an incrementally higher channel transmission power.

17. (previously presented): A method according to claim 13 wherein the predetermined value, which is compared with the number of reply signals, is calculated to correspond to a desired number of neighbor stations available to a given station as intermediate or destination stations, to permit the given station to communicate optimally with a desired number of other stations in the network without causing undue contention or interference between stations.

18. (previously presented): A method according to claim 1 including defining a plurality of data channels, each data channel except the first having a higher data capacity than a previous data channel, each station transmitting data to neighbour stations on selected data channels after determining the availability of said neighbour stations.

19. (original): A method according to claim 18 wherein the data channels correspond to respective calling channels, a data channel being selected for transmission of data which corresponds to the selected calling channel.

20. (original): A method according to claim 18 wherein a plurality of data channels correspond to a single calling channel, the data channels being monitored for activity by the stations and a station wishing to transmit data selecting a data channel which has been detected as free of activity, thereby to optimize data channel usage between stations.

21. (original): A method according to claim 20 wherein probe signals transmitted by each station on the calling channels include information indicative of the intention of a given station transmitting said probe signals to move to a selected data channel which is then flagged as being active, to permit other stations to communicate successfully with the given station on the selected data channel.

22. (previously presented): A method according to claim 1 wherein probe signals are transmitted regularly by stations attempting to establish contact with other stations, other stations receiving the probe signals responding to a random number of the probe signals, said random number being equal to or less than the number of probe signals transmitted.

23. (original): A method according to claim 22 including controlling, at each station, the interval between the transmission of probe signals by a probe timer, the probe timer defining an interval between successive probe signals which is longer than the duration of a probe signal, and transmitting response signals during periods between the successive probe signals.

24. (original): A method according to claim 23 including varying the interval between the transmission of successive probe signals at each station according to whether or not the station has data to transmit, the probe timer defining a first, relatively short interval between successive probe signals when the station has data to send, and a second, relatively long interval between successive probe signals when the station has no data to send.

25. (previously presented): A method according to claim 1 wherein stations are designated as important and these stations transmit probe signals including data identifying them, other stations receiving these probe signals in turn modifying their own probe signals to include the data identifying the important stations, so that even stations remote from the important stations obtain said data.

26. (original): A method according to claim 25 wherein the designated important stations include gateway stations, certification authority stations and, from time to time, originating or destination stations.

27. (previously presented): A method according to claim 1 including distributing updated software for the operation of the stations by uploading the updated software to a selected station, and distributing portions of the updated software to other stations until each other station has the complete updated software.

28. (original): A method according to claim 27 wherein the updated software is distributed in update blocks including version data and block number data to permit stations to assemble the update software from a plurality of received update blocks.

29. (original): A method according to claim 28 wherein at least one of the update blocks includes timing data indicating a date and time at which the updated software must be used.

30. (currently amended): A wireless communication network comprising a plurality of stations each able to transmit and receive data so that the network can transmit data from an originating station to a destination station via at least one opportunistically selected intermediate station, each of the stations operating in use to:

a) define at least one calling channel distinct from at least one data channel, on which stations can transmit probe signals to other stations to which any station can respond, receive probe signals from other stations, and monitor probe signals transmitted by other stations;

b) select, at intervals, according to first predetermined criteria, a calling channel or the transmission of probe signals to other stations;

c) transmit broadcast probe signals to other stations at intervals on the selected calling channel, other stations which receive the broadcast probe signals from a given station responding directly or indirectly, via at least one intermediate station, to thereby indicate to the given station their availability as destination or intermediate stations; and

d) evaluate the direct or indirect responses of other stations to said broadcast probe signals according to second predetermined criteria, in order to identify other stations with which the given station can communicate optimally.